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When value conflicts are barriers: Can relational values help explain farmer participation in conservation incentive programs?

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Highlights:

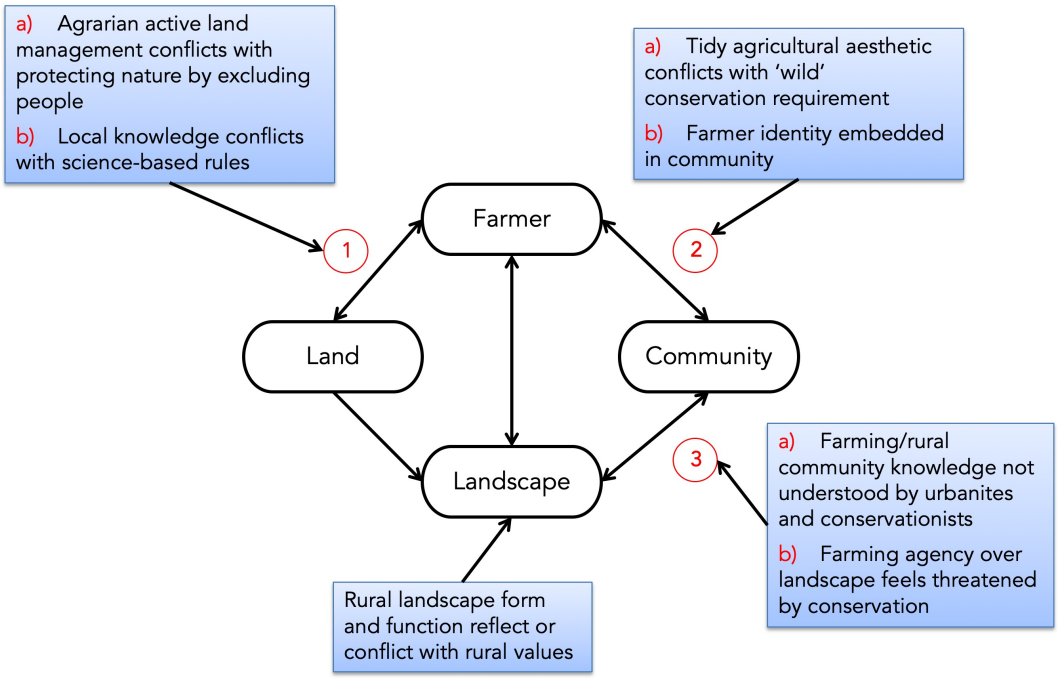
- We propose a conceptual framework to understand farmer participation in incentive schemes.
- Our framework is based on three key relationships: Farmer—Land, Farmer—Community, Farmer—Landscape.
- We identified five types of value conflicts that served as barriers to participation in an agri-environmental incentive scheme.
- Aligning programs with the values of target participants could increase enrollment and reinforce stewardship.

Abstract:

Agri-environmental incentive programs seek to compensate farmers for changes to enhance ecosystem services and/or biodiversity, yet enrolling participants is a common challenge. We examine this challenge using a relational values lens, a framework developed here in reference to three key relationships of farmers to: their land, community and landscape. We then apply this framework to better understand participation in an incentive program for riparian buffers in the US Northwest (the Conservation Reserve Enhancement Program). Results are derived from in-depth interviews among participants and potential participants. Using qualitative coding and analysis, we identified five key value conflicts between participants and programs, via the implications of program rules for participant values: aesthetics, active land management, parcel-specific knowledge, and community knowledge about and agency over the landscape. Applying a relational values framework demonstrates how program conditions appear to threaten these valued relationships, leading to value conflicts between programs and participants. Analysis of participant responses suggests that grounding conservation programs in locally salient values could not only increase enrollment but also foster stewardship values that underlie conservation. We conclude with suggestions as to how agri-environmental incentive programs could adapt to better fit with farmer values—making programs more attractive without undermining their ecological effectiveness.

Key words: environmental values; relational values; incentives; payments for ecosystem services; value conflicts; riparian buffers; agri-environment programs

Graphical Abstract: ***Key relationships of farmers (and other rural land managers) and resultant value conflicts between farmers and conservation programs***



1 Introduction

A variety of educational, outreach, extension and incentive programs and policies seek to encourage farmers to adopt stewardship practices. Focal practices include riparian buffers, forest set-asides, and farming that is wildlife-friendly, no-till or organic. Some programs compensate farmers for the direct costs of changing practices or building new infrastructure or natural areas. Other programs go farther, paying farmers for forgone income from agricultural production incurred via the conservation practice. The latter programs, generally characterized as payments for ecosystem services (PES) or simply incentive programs, may be necessary in contexts where the opportunity costs are significant and farmers have low or even negative profit margins (Jack, Kousky, & Sims, 2008; Wunder, 2013). Similarly, incentive programs might be more attractive to farmers than command-and-control environmental regulations because of their voluntary nature and the cost-sharing and/or compensation involved (Jack et al., 2008). Many countries already subsidize agricultural production—to protect the cultural heritage inherent in some agrarian landscapes, to support local farming economies, or to bolster food sovereignty.

A key question for all incentive programs (including PES) is how to encourage enrollment. One approach is to set incentive amounts that exceed the full costs to farmers of implementing and maintaining the conservation practice (direct and maintenance costs, respectively), and any resulting losses in income or potential income (opportunity costs). Such an approach is costly and so not generally popular with policymakers. However, farmers may still choose to participate even without being compensated for the full cost (Stoneham, Chaudhri, Ha, & Strappazzon, 2003) and many may resist participation even when payments appear to equal or exceed full costs (Buckley, Hynes, & Mechan, 2012). Therefore, while incentive programs and especially PES have generally been considered a purely financial instrument in the ecosystem services literature, economic motivations alone do not explain participation.

An alternative approach has examined if farmer motivations can be explained by their environmental attitudes, values, or culture. Research on the role of farmer attitudes has often drawn from the Theory of Planned Behavior, which focuses on the roles of attitudes and beliefs in shaping behavior (Ajzen, 1991; Buckley et al., 2012; Farmer,

Knapp, Meretsky, Chancellor, & Fischer, 2011; Greiner & Gregg, 2011). As attitudes are often seen to be preceded by values, another strand of work has examined the role of values in environmental behavior. Research into values and behavior has often drawn from Value Belief Norm theory, which employs three broad value orientations: egoistic, altruistic or biospheric (Stern, Dietz, Abel, Guagnano, & Kalof, 1999). Studies of farmers' values have often taken a similar tack—considering nature-oriented values versus production-oriented values (Schoon & Grotenhuis, 2000; Swagemakers, Garcia, Torres, Oostindie, & Groot, 2017). More recent efforts, also known as the cultural turn in agricultural research, focus on the ways social and cultural factors mediate motivations and behavior (Blackstock, Ingram, Burton, Brown, & Slee, 2010; Burton & Paragahawewa, 2011). Recent synthesis work has sought to link attitudes, values and culture, with a suite of other factors (e.g., social-psychological, production and economic limitations), and shown the importance of program 'fit' with farmer's needs and values (Bennett et al., 2018; Burton & Paragahawewa, 2011; Darnhofer, Lamine, Strauss, & Navarrete, 2016; Mills et al., 2016; Sorice & Donlan, 2015).

This poses the question—with which values should a program fit? To answer this question, we need to understand values that are more specific than the value categories of egoistic, altruistic or biospheric. Yet less work has identified farmers values in the terms needed to re-design programs. One notable exception is research on the aesthetic value for neat and tidy landscapes, which Burton has explained as a way demonstrate being a 'good farmer.' This work has shown that farmer's aesthetic values (e.g., for a tidy landscape) can be seen as symbolic of broader cultural values and function as a form of cultural capital (Burton & Paragahawewa, 2011). One way to re-design programs to fit with tidy aesthetic values, is to create what Nassauer calls 'messy ecosystems in orderly frames' (Nassauer, 1995).

In line with this focus on the intersection of farmer values and program design, we propose that a key underexplored barrier to farmer participation in incentive programs may be value conflicts. That is, mis-alignment between farmers' values and those articulated by programs. By this we mean that programs articulate particular values via rules, scope, criteria, priorities and other means (Vatn, 2005). And these may align or conflict with values of intended participants. Conflicts or mis-alignment of

participant and program values can cause rural communities to feel their own values are threatened (McCarthy, 2007; Nesbitt & Weiner, 2001; Walker & Fortmann, 2003) or may lead to perverse outcomes for human wellbeing or conservation (West, 2006). Additionally, if incentive programs inadvertently promote monetary benefits over locally salient stewardship values, motivational crowding out could occur (whereby stewardship values are eroded and/or replaced by instrumental motivations) (Rode, Gómez-Baggethun, & Krause, 2015). Conversely, when programs support actions and language that align with participant values, they may be more successful. Programs might signal alignment with participant values in several ways: a) by the types of conservation actions they support (e.g., fences align better with aesthetic values for a tidy landscape than do overgrown buffers (Burton, 2004)); b) the language they use to describe the program (e.g., aligning with production values by framing ES as a product that farmers produce and could be proud of (Wynne-Jones, 2012)); or c) the rules of the program (e.g., aligning with the value of autonomy by allowing farmers to share conservation management decisions (Sorice et al., 2013)).

The forgoing discussion raises two central questions: Do programs align themselves with or misalign with farmer values and if so, how might any conflicts be mitigated or addressed? In this paper we examine these questions using the case of the Conservation Reserve Enhancement Program (CREP), which compensates agricultural land owners for direct, opportunity and maintenance costs of installing native vegetation along salmon-bearing streams. While some programs that offer much less in the way of compensation are oversubscribed (e.g., Costa Rica's nationalized PES), CREP is undersubscribed, despite generous compensation. We examine the possibility that poor alignment of rural values (e.g., related to place, community and landscape) and values implicit in CREP (via program rules, design or delivery) may impede increased participation. Interviews with participants and potential participants in a rural county near Seattle, Washington, USA were used to elicit farmer values as well as motivations and barriers to participation in programs incentivizing the creation of riparian buffers on agricultural land.

2 A relational values framework to understand program-participant value conflicts

In analyzing program and participant values, we draw from and build upon emerging work on the concept of relational values (Chan et al., 2016). Environmental values have traditionally been conceived as deriving from either the intrinsic (nature for its own sake) or instrumental (nature for people's sake) value of the biophysical world. Debate on the relative merits of intrinsic versus instrumental values has dominated discussions of environmental values in both environmental ethics (Callicott, 2014; Newman, Varner, & Linquist, 2017; Norton, 2000; Taylor, 2011) and conservation theory and practice (Kareiva, Watts, McDonald, & Boucher, 2007; Soulé, 2013). We respond to this debate and calls to move beyond it (Tallis & Lubchenco, 2014) by proposing focus on a third, largely overlooked, category of values: relational values. Relational values are "preferences, principles, and virtues associated with relationships, both interpersonal and as articulated by policies and social norms," (Chan et al., 2016). Inspired by Brown (1984), relational values as a concept builds on and integrates existing work on the normative or valued aspects of relationships with nature in philosophy (Jax et al., 2013; Muraca, 2011; 2016; Norton & Hannon, 1997; O'Neill, Holland, & Light, 2008) and social sciences (Avcı, Adaman, & Özkaynak, 2010; Martinez-Alier, 2008; Poe, LeCompte, McLain, & Hurley, 2014; Trainor, 2006; Turner, Gregory, Brooks, Failing, & Satterfield, 2008) that each elaborate versions of plural or relational ways of valuing nature. Initial empirical work has shown that relational values are distinct from traditional measures of environmental sensibility (Klain, Olmsted, Chan, & Satterfield, 2017). More broadly, the relational values concept aligns with larger movements in the social sciences, humanities, and phenomenology towards relational ontologies (Castree, 2016; Emirbayer, 1997; Escobar, 1999; Küpers, 2015; Massey, 2005; M. Schoon & van der Leeuw, 2015; Scott, 2016). They have also seen traction in policy platforms, e.g., relational values are central in the conceptual framework and ongoing work of IPBES, the Intergovernmental Platform on Biodiversity and Ecosystem Services (Díaz et al., 2015; Pascual et al., 2017).

We defined 'environmental values' as languages of care or its absence with regard to the environment broadly stated and (following Trainor, 2006). In this sense all people have environmental values—some may be about care or respect, others about mastery

or extraction (Kellert, 2005). In particular we are interested in understanding different ideas about appropriate relationships—between people and the natural world directly; or between different people mediated by landscapes, particular species, or other aspects of the natural world.

In order to enable people to articulate their values, we considered not only value-like statements, but also languages people used to discuss their practices, relationships and ecological understandings as they intersect with those values (O'Neill et al., 2008). This allowed us to account for different groups' understandings of the material world (e.g., professional farmers, hobby farmers, eNGOs, conservation groups) and their relation to it. More specifically, using a relational values lens allowed us to shed light on the mechanisms by which values and pro-environmental behavior interact. One reason mechanisms have been difficult to determine is that values and attitudes have generally been seen as (relatively static) attributes of the person (Burton, 2014; Dietz, Fitzgerald, & Shwom, 2005). Approaching values as relational (e.g., between people and landscapes) (Chan et al., 2016) might help to identify mechanisms by which values interact with behavior.

In many agricultural communities, values are not just personal characteristics (virtues), but also derivative of relationships to people, community, land and place and as such expressed on landscapes (as illustrated in Figure 1). For example, a key concern of many agrarians is the relationship between the farmer and their community (Donahue, 2003; McCarthy, 2007). For many rural resource-dependent communities, the structure of the landscape (e.g., via farm management practices) is essential for a way of life (Satterfield, 2007) and also as a reflection of key values of place (Drenthen, 2009). We therefore consider values as derivative of key relationships and represented and 'read' on the landscape. Landscapes that reflect the values of the farmer are legible (the farmer can 'read' the meanings of neat hedgerows, well cared for fences, lush green grass, and healthy animals—signs, for example, of a vibrant farming community and shared values of productive and tidy landscapes) (Burton, 2004; Irvine et al., 2016; Nassauer, Wang, & Dayrell, 2009).

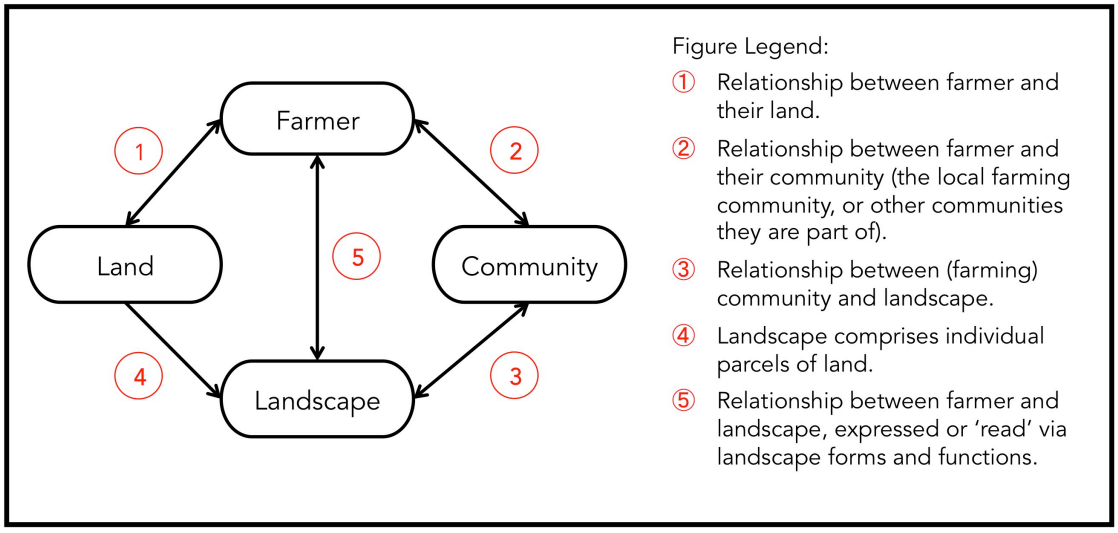


Figure 1: Conceptual Framework of Relationships and Associated Relational Values. We understand farmer and rural land manager's relational values as derivative of certain relationships described in the conceptual framework above. The specific relational values and their corresponding relationship (1-5) are listed in Table 1. We consider that each of these relationships (and corresponding values) can be threatened (or perceived as threatened) by particular program rules or language, as well as by policy or larger social trends (e.g., rural to urban migration).

As above, programs and polices also reflect values, intentionally or not. In this sense, they can be considered as institutions that 'articulate' values in several ways (Vatn, 2005): by setting criteria for evaluation or arbitration between different outcomes; prioritizing values or sets of values (e.g., explicitly via mission statements or goals, or implicitly via rules, language choice, and scope of work); and defining jurisdiction and decision-making processes (e.g., who participates and how?) (Tadaki, Allen, & Sinner, 2015; Trainor, 2006; Vatn, 2005). While the term value-articulating institutions was initially applied to environmental valuation methods, it equally applies to the institutions, interventions and programs born of the same economic logic that inspired such valuation methods (Tadaki et al., 2015; Vatn, 2010) (Jacobs, 1997). One such program are those known as payments for ecosystem services. By offering not only compensation for project costs, but also an 'incentive payment' contingent on compliance, CREP can be considered a PES where the service is the creation of salmon habitat via riparian buffers. While often conceptualized as a market mechanism, as Vatn argues, PES is, in practice, equally an institution, requiring state or community engagement (Vatn, 2010).

3 Methods

3.1 Study Area

Riparian buffers—vegetation strips along streams and waterways—are key for both salmon recovery efforts and watershed restoration in the Puget Sound region. Riparian buffers improve habitat for salmon via water filtration, stream bed stabilization, riparian habitat creation, large woody debris provision, and stream temperature stabilization. However, no regulation in the Puget Sound region requires the creation of new riparian buffers on agricultural lands. Some regulations (which vary by county) protect existing riparian areas. Therefore, increasing the miles of stream with riparian buffers requires cooperation of private landowners, who are sometimes reluctant to 'give up' what they currently view or utilize as productive land. A variety of programs exist in the Puget Sound to support and incentivize the creation of new riparian buffers on private land, including the federally funded Conservation Reserve Enhancement Program (CREP). Similar to the federally administered Conservation Reserve Program, CREP is a partnership between the federal Farm Service Agency and state governments to address "a high priority conservation concern" (Farm Service Agency, 2017). In Washington State, CREP is specifically designed to address endangered and threatened salmon species (Farm Service Agency, 2017). Agricultural land owners with designated salmon-bearing waterways are eligible for CREP. In the Puget Sound, Chinook (*Oncorhynchus tshawytscha*), Hood Canal summer chum (*Oncorhynchus keta*), steelhead trout (*Oncorhynchus mykiss)* and bull trout (*Salvelinus confluentis*) are all threatened (Washington State Recreation and Conservation Office, 2017). Valued for tribal, commercial and recreational fishing, these species also play critical roles in the cultural traditions of Native American tribes in the region.

County level conservation districts recruit participants to CREP and administer and manage the projects, along with a variety of other voluntary and cost-share programs. Yet conservation districts have had difficulty achieving their recruitment goals, leading to questions about how to increase participation rates in order to accomplish regional salmon-recovery and water quality goals. Most programs offer some form of cost sharing for the expense of installing riparian buffers. However, CREP pays the expense of installation as well as a yearly incentive payment for up to 15 years based

on the width and length of eligible land put into riparian buffers. Despite these generous benefits, many eligible participants choose not to enroll in CREP. At the time of research, riparian forest buffers had to be at least 35 feet wide to receive funding from CREP (on each side of salmon bearing streams). In 2015, the minimum width was extended to 50 feet. Current policy debates surround proposals to increase minimum buffer widths required for CREP participation. In addition to the minimum width requirement, CREP requires that buffers be 'no-touch' in that no agricultural activities can occur in the buffer zone.

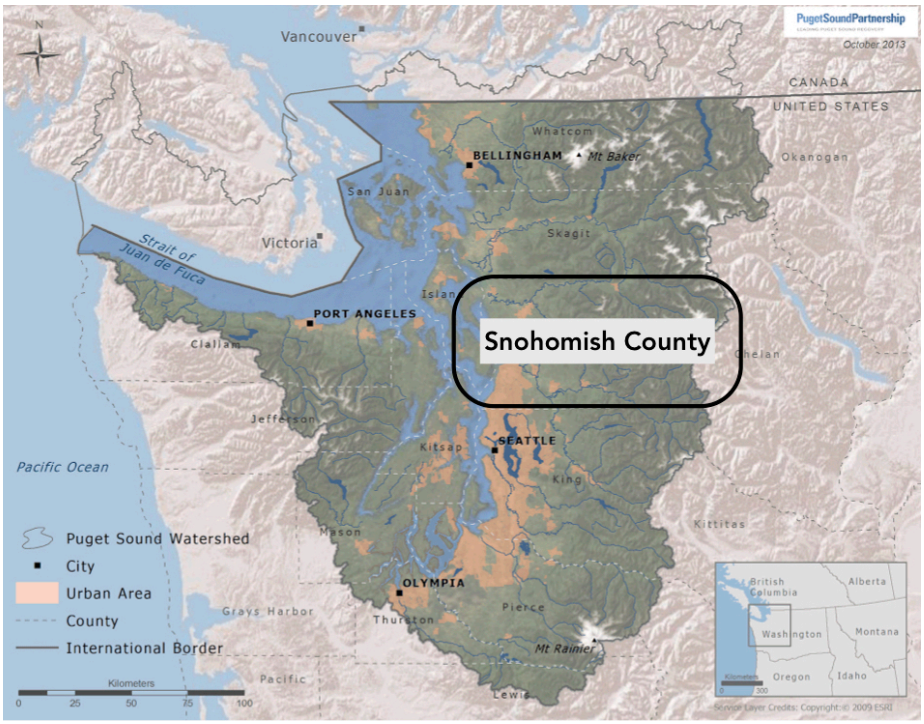


Figure 2: Study Area showing the Puget Sound region and Snohomish County. Interviews were conducted in Snohomish County. Map courtesy of Puget Sound Partnership.

3.2 Data collection and analysis

The interview protocol and research design were developed in consultation with regional research partners: the Puget Sound Institute and Snohomish Conservation District. Interviews were conducted with 22 agricultural property owners or managers in Snohomish County who had worked with or considered working with the Snohomish Conservation District on riparian buffers and other conservation projects on their property in the fall of 2013 and 2014. Interviews lasted between 1/2 and 2 hours and were conducted by the lead researcher in participants' homes, workplaces or cafes, with the exception of 2 phone interviews.

Interviews focused on three key areas: a) values related to farms and farming, including sense of place, aesthetics, and land management paradigms; b) experiences with riparian buffer programs, including motivations, benefits, and costs to participation; and c) participants' suggestions for improvement of riparian buffer programs (see interview protocol in supplementary information). The following are examples of the questions used to elicit value information: a) Comparison: 'Can you describe a farm/ranch in this region that you admire and why?'; b) Sensory information: 'Can you describe what it's like to be there? Any sounds or smells come to mind?'; c) Narrative elicitation: 'Can you tell me a story that describes why or how you value that place?'

Interviews were audio recorded, transcribed, and coded using Nvivo for Mac qualitative analysis software. Codes were derived followed an iterative process of codes that emerged from or were inspired by respondents' own words (e.g., keeping the farm in the family) and theoretically-derived codes (e.g., neat and tidy aesthetic) based on literatures on agrarian values, agrobiodiversity and food production, and those from research on rural/urban conflicts and conservation programs in rural communities (see Table 2 for specific articles) (J. W. Creswell & Creswell, 2017). Identification of points of conflict in CREP with participant values was derived based on the participants' own perspectives (some participants had read the CREP rules in great depth).

Our group of farmers interviewed consisted of 3 full-time farmers (in that they obtained more than half of their income from farming), 8 part-time farmers (farms which operated as a business but were supported by off-farm income), 9 hobby farmers (who produce only for friends or family, have horses for personal use, or operate nurseries), and 2 land managers of church properties with agricultural designations. Unless otherwise specified, in this paper we use the term 'farmer' to refer to the whole interview group, including agricultural producers and other managers of land with agricultural designations. Most had animals on their land, usually horses or cows. Participants came from communities in or around Arlington, Everett, Stanwood, Lake Stevens, Monroe, or Snohomish. They had lived in Puget Sound between 3 and 72 years. The sample included both CREP enrollees (7 current and 3 potential) as well as landowners who had implemented or were planning to

implement a riparian buffer via a cost-share or voluntary program. The sampling of CREP enrollees was limited by the number of potential participants in the Snohomish Conservation District's network (there were only 29 CREP enrollees in Snohomish County at the time of research; of these 17 were full-time farmers). The prevalence of hobby farmers in our sample is largely reflective of Snohomish County, where the average net cash income from a farm is $4,244. Of the 1,438 farms in Snohomish County, 589 have sales of less than $1,000 annually. A further 536 had sales of $1,000 to $10,000 annually (US Dept of Agriculture, 2014). Thus, while the interviewed group is not a representative sample of those enrolled in CREP, it does largely reflect the context of rural landowners in the County.

4 Results

4.1 Relational values of farmers

Many respondents expressed strong values regarding their relationships with their land, pertaining to connections to past and future communities, family and spirituality as mediated by land and landscape. Many farmers spoke of farming as a lifestyle and an identity—and one that was based on actively working the land. For some, it was hard to imagine a life without farming. We consider these values as derivative of key relationships and examples as listed in table 1 with the corresponding relationship from our conceptual framework (1-5, see Fig. 1).

Table 1: Relational values of rural lands, landscapes and community. This table lists the key relational values and example quotes elicited from interviews with farmers and other rural land managers in Snohomish County (see Methods). The final five themes are values that conflicted with program rules (see Table 1 and Results for details).

Relational Value (Relationship based on Fig 1)	**Example Quote**
Farming heritage (2, *farmer-community*)	It's the satisfaction of feeding cattle, doing things, the cycle of life, [being] part of it. This has been my life. I [worked another job] but I came home to this every night. It's just my heritage, my roots. [Interview 03]
Continuity of farming (1, *farmer-landscape*)	It doesn't have to have a specific role . . . just that it becomes healthy and vibrant and stays a farm. [Interview 07]
Farm for family and kids (2, *farmer-community*)	[It's] always been our driving goal to get into more of a farming life for the kids. Something that slows down. You know we actually voluntary dropped in income, I mean that's almost unheard of. [Interview 09]

Relational Value (Relationship based on Fig 1)	**Example Quote**
Keeping the farm in the family (2, *farmer-community*)	We would like to be able to build a business for the next generations so that it stays in the family. And it's interesting, the more my husband and I get involved in this, the more excited I can see my dad and grandmother... happy about the farm.... I think they had given up and now they are excited to see it being passed down. And so it definitely has a family connection. [Interview 07]
History of the land (2, *farmer-community*)	My grandfather was actually born maybe 500 yards from here. Right up in this direction, where there was this little log cabin that was still sitting there next to the side of the road. That was used as a schoolhouse when my grandfather was here. [Interview 8]
Land for community (2, *farmer-community*)	What we're doing with the creek restoration [is] getting out there and actually planting a tree. Physically it's good for you because you get in the soil, that's good for you. And it's also good for you for the psychological part of it, just being out there and being outside. [Interview 16]
Leaving a legacy (1)	[Our neighbours are] aware of the value of land. They think the same we do, which is we don't really own property, we are stewards. They too are stewards. [Interviewer: And what does that mean?] That we're here for a limited piece of time and our job is to make sure that the property in as good a shape or better shape at what point we leave. [Interview 20]
Spiritual connection (1)	There's never been a moment where we didn't view the property as something extraordinary. To be surrounded by and listen to nothing but water, animals, sound of the wind going through trees. I'm sure there are people for whom that is totally useless, means nothing to them. My wife and I are both very tied to the land, spiritually and emotionally, so it means a lot to us. [Interview 20]
Responsibility to land, water, and animals (1)	As far as values, that's all kind of steered towards the animals... and, [to] check the water quality. I don't want to come out here and just pillage the whole property. [Interview 11]
Harmony with nature (1)	We'd go places and when we would see a sign along the Samish River. There's a CREP Buffer. And there's a sign identifying it as a CREP Buffer. And just this concept of someone that cares enough about their land they're trying to do something to restore the ecological function and live in harmony with it [Interview 14]
Neat and tidy aesthetic (2)	I've been to a lot of different farms and there's just a lot of debris and blackberries growing up around there and everything. And you don't see any of that on our farm. [Interview 04]
Active land management (1)	This is a home … This is where somebody lives and somebody has taken ownership of the land and responsibility for it …you look around, and you won't see any [invasive] Scotch Thistles, that's not because I use chemicals on them, that's because I went around with a shovel and a cultivating fork and I dug every single one of them up that I could find, every spring. That's why they are not here. [Interview 12]

Relational Value (Relationship based on Fig 1)	Example Quote
Application of parcel specific knowledge (1)	Honestly, I approached the Snohomish Conservation District first and the people there are quite knowledgeable, and they are really friendly but I think unless you have some local knowledge or really work on the land you can't anticipate and know what to do. For example, there are blackberries and when I asked Conservation District, they told me the best thing to do is spray chemicals to get rid of them. So, I was looking for who has the machine to spray the area with a licensed sprayer. But a local farmer came and said, 'you know there's no machine that will be able to do it for you because your land is so [full of holes]' … So, I can't do that. I sort of realized [I know] more than the conservation district at this point in time. [Interview 18]
Community agency over landscape (3, *community-landscape*)	Frankly, it's just not that easy farming over here like it used to be. The regulations are getting tighter and tighter. They would like to set you back up to a hundred feet away [from the stream], and buffers as much as three hundred feet. But they say that they'll probably never really implement that. But, I don't entirely trust the government either. If they can get it done, the way things are going in this country. Let's have a little common sense here. And I would hope that that would prevail. But there are plenty of people out here that would rather see that nothing was farmed out here and this was just nothing but a big wetland, like it used to be in the past. Just the wetlands. Nothing else. [Interview 10]
Applying knowledge of community (3)	I think it's easy to be environmentalist when you live in the city. You idealize the environment as this wonderful playground that you go to and enjoy, and I think when you move out here and you start to see the land as being a not only a recreational opportunity but also a working thing that produces, that changes your view somewhat. More specifically to this project, getting this paperwork from the feds and looking at it and just going 'what the heck'. And realizing that maybe the government isn't as entirely altruistic in all of this as I thought they were. It was an eye-opener for me. [Interview 14]

4.2 Value Conflicts between Farmers and Riparian Buffer Programs

Respondents who elected to install a riparian buffer (CREP, independently, or via another program), often discussed the benefits of the project to relational values, such as those listed in Table 1. For many respondents, especially those actively farming their land, the ability to improve productive capacity or function of their land as a whole was important. Often, the Snohomish Conservation District could provide technical, labor or material contributions that allowed for the simultaneous creation of buffers alongside changes desired by the landowner (e.g., stabilization of stream beds, measures to improve drainage, compost installation, etc.). Thus, while they might lose some economically productive crop or grazing land in order to create the buffer, this was in cases outweighed by overall improvements to productivity or function.

Improving the land can help assure the continuity of farming or leave a legacy of care for the next generation (Table 1). Many mentioned a sense of stewardship or "doing the right thing" and for some the ability to improve water quality or support salmon and other wildlife was an important reason to install a buffer. In this sense, a riparian buffer project can align with values such as living in harmony with nature or responsibility to land, water and animals (Table 1). Financial, technical and labor assistance were also important for most respondents: for some apparently as motivations in their own right and for others as enabling factors to do what they would have liked to do anyway. Motivations, the more specific reasons for installing a buffer, therefore included the ways the project could support both the farm's finances and the farmer's relational values.

Some respondents, while initially interested in a CREP buffer, ultimately ended up working with the Snohomish Conservation District to install a buffer via other grant programs or without financial assistance. CREP has a substantial financial advantage over any of the other grant programs that Snohomish Conservation District can offer to landowners for creating riparian buffers: CREP pays not only for the full costs of riparian buffer installation, but also for maintenance costs associated with the vegetation and infrastructure (fences are installed in cases where the vegetation could be damaged by wildlife such as deer or by livestock), as well as a yearly rental payment to cover the landowner's opportunity costs (or forgone potential to use the land converted into a buffer for economically productive purposes) and an incentive payment equal to the annual rental payment. Other grant programs managed by the Snohomish Conservation District cover partial costs of buffer installation, but not maintenance or opportunity costs.

Respondents that opted to forgo these substantial financial benefits often mentioned one or more of the rules of CREP as the reason why. In particular, respondents objected to three types of rules: 1) the no-touch requirement (which restricts land-owner activities in the enrolled riparian buffer area); 2) minimum buffer widths (35 feet on each side of the stream or river at the time of research); 3) the types of buffers required (CREP primarily pays for riparian forests which consist of a variety of native trees and shrubs that will ultimately grow to provide shading of the river and deposit large woody debris). These rules and associated value conflicts are illustrated in Table

2 as derivative of the key relationships described in our conceptual framework (Fig. 1).

Table 2: Value conflicts between farmer and other rural land manager values and CREP rules. The first column lists the valued relationship based on the conceptual framework in Figure 1. The second is the relational value (elaborated in the text). Finally, three rules of CREP were most likely to dissuade participation based upon value conflicts. The final column lists literature relevant to each of the relational values and/or value conflicts.

Relationship (number from Fig. 1)	Value	Value conflict: No Touch	Value Conflict: Min. Width	Value Conflict: Buffer Type	Relevant Literature for Value Coding
Farmer to community (2)	Neat and tidy aesthetics	✔		✔	(Burton, 2012; Nassauer, 1995; Nassauer et al., 2009)
Farmer to land (1)	Active land management	✔	✔		(Burton, 2004; Carlisle, 2013; Cronon, 1996; Marris, 2011)
Farmer to land (1)	Application of parcel specific knowledge	✔	✔		(Cash, Adger, Berkes, & Garden, 2006; Harrison, Burgess, & Clark, 1998; Millar & Curtis, 1999; Schneider et al., 2010; Tsouvalis, Seymour, & Watkins, 2000)
Community to landscape (3)	Knowledge from farming community	✔	✔	✔	(Gareau, 2007; Nesbitt & Weiner, 2001; Sayre, 2006; Shepherd, 2010)
Community to landscape (3)	Agency over landscape	✔	✔	✔	(McCarthy, 2007; Smith, 2003; Walker & Fortmann, 2003)

While there are many value presumptive guidelines and rules in CREP (far too many to list in this paper), we focus here on those rules pertinent to the key points of conflict. One interviewee had read through the entirety of their proposed CREP contract and presented this 2-3 cm thick collection of papers to the researcher. In neighboring Skagit County, a researcher mentioned discussing CREP rules for an hour with two administrators and only covering the "tip of the iceberg" (Breslow, 2001). The sheer volume and complexity of rules under CREP meant that participants

had to either trust the Snohomish Conservation District staff person to explain the program to them, or attempt to muddle through numerous pages of legal contracts. CREP involves a number of detailed guidelines, such as for avoiding 'take' of endangered species during installation and maintenance activities, managing pests, and agency roles for cultural resources. Assessing what can and cannot be carried out often is the purview of "qualified agency personnel" or "trained personnel," (Farm Service Agency, 2017) essentially excluding the landowner from making many decisions about what happens on their land. The following section explains those values that conflicted with CREP rules.

4.2.1 Aesthetics: Agrarian farm preferences can conflict with program preference for 'wild' riparian buffers

Many rural land managers, particularly those that were full or part time farmers, preferred an aesthetic that was neat, orderly and well cared for, expressing that a tidy farm is a way to demonstrate both care and competence. Riparian forest buffers on the other hand, can appear 'messy' or 'wild.' Other types of buffers (such as hedgerows or grass strips) are 'tidier' than a forest buffer in that they tend to be short, of one height, and just one type of plant. 'Tidy' farms require work—work that cannot be undertaken if the landowner is excluded from 'touching' the land via a no-touch rule. One farmer described his dislike of the way many other farms looked and his pride at the tidy aesthetic of his own farm. He went on to explain that a beautiful farm is an organized farm. This organization is then specifically tied to the work of farming: hard, meticulous work.

> *Interviewer: What is it about that [your farm] in contrast to other farms that makes it so beautiful?*
>
> *Respondent: Organized. [laughs] . . . this farm, the outbuildings are made from the original homestead home and they're still upright and they are still nice looking, and they are painted, and everything looks organized. [My partner's] dad, he's very meticulous. He goes, and he mows a couple times a month and he's down there planting flowers and trees. [Interview 04]*

Some of these aesthetic concerns were practical. For example, when working with machinery the curving lines of a river (that a buffer would normally follow) are difficult to maneuver. While this is normally a challenge, one farmer was able to achieve both aesthetic and ecological goals in one CREP-funded buffer by planting the vegetation at varying widths along the river, allowing for both a meandering river

and a square field: *"A farmer likes a nice square piece of ground, and when there's a lot of corners and turns and angles it's hard to get your equipment in there"* [Interview 05].

Visibility of farm animals was also important. Riparian vegetation could sometimes impede farmers seeing that all the animals were safe. Some grant programs provide for small hedgerows along watercourses to allow visibility, access to the watercourse for dredging, and avoided shading adjacent fields. CREP riparian forest buffers however require plants that will grow to a full riparian forest, including shrubs and trees. Others simply valued being able to see the creek or river on their property.

While more respondents expressed a preference for neat and tidy farms, a few preferred a natural look. These landowners often mentioned the wildlife they could observe as highly valued, for example: *"Listening to the eagles calling is amazing and you just feel privileged to be here, you experience all of those things"* [Interview 01]. And in some cases they sought a mix of 'wild' and 'organized' areas on their property, as in the following hobby farmer: *"I always keep a few sort of crazy areas where the animals and mother nature can just get on with it but . . . if I could have a work crew come in here every other week I'd be the happiest woman in the world"* [Interview 13].

4.2.2 Active land management: No-touch restriction conflicts with ethic of active care

A commitment to actively managing one's land caused some respondents to choose a non-CREP buffer, despite the much lower financial incentives. Many participants, that is, expressed the importance of independently caring for and managing their land and their frustrations with certain CREP rules. Two different rules/restrictions in CREP motivated these choices.

First, for some, minimum buffer widths were too restrictive, especially for smaller properties. One hobby farmer explained that the shape of the creek and his property would leave him with very little useable land left given the 30 foot minimum for CREP enrollment: *"I bought the property because I want to use the property and so you can throw as much money as you want in front of me but that's not why I'm here"*

[Interview 17]. For this landowner, the additional financial incentives from CREP could not compare with the potential loss of usable property.

Second, the restrictions imposed by CREP regarding how landowners could manage the land enrolled in the buffer caused some to reject the program, especially the 'no-touch' rule, which some farmers saw as limiting even their ability to move around a few large rocks in the river. One hobby farmer explained that the restrictions would not be worth the financial and labor assistance provided by CREP. He explained: *I'd rather spend the time and work and do it myself and not have them restricting what I can do [Interview 12].* Another hobby farmer also expressed concern about the no-touch rule, explaining: *I don't want to feel like I'm a criminal for picking a few nuts up off the ground [Interview 14]*.

Some landowners were happy to 'let nature do its thing,' but these were mostly ex-urban migrants to rural areas. For example, one ex-urban hobby farmer even supported the idea of no-touch: *But most of it I don't touch it. I don't want to touch it [Interview 09]*. However, more landowners expressed a view of stewardship that focused on taking an active role in land management, as explained by the hobby farmer below regarding blackberries.

> *I want to leave it better than when I found it. But what is better? That's the responsibility that I have is to figure out what is better. Just to walk away from it, let the blackberries take over everything and just let it go back to nature, I don't feel that's an improvement. We are part of the environment here also, I am part of Nature, I live here. This is where my home is. [Interview 12]*

While Puget Sound has a native blackberry, far more common are Himalayan and evergreen blackberry bushes which are considered a Class 3 noxious week in Washington State and are particularly prevalent along streams. CREP funding will pay for removal of blackberry bushes in riparian areas if needed, however, they are extremely difficult to fully remove and control. On this point then (removal of blackberries), most farmers were in agreement with CREP. However, the above respondent extrapolated this idea of no-touch to potentially include letting blackberries 'take over everything' to make the point of why active management was needed. How then can the program pay for blackberry removal if the buffers are 'no-touch'? The reason is that the 'no-touch' rule applies to the farmer, but not to the government staff implementing the buffer. The farmer might also participate in

creating the buffer, but this would need to be approved by the program staff. Thus while 'no-touch' does not literally mean that the farmer cannot touch any part of the buffer, farmers sometimes perceived it to mean no activities whatsoever in the buffer zone.

4.2.3 Knowledge base: Rules and regulations over-ride farmer's parcel-specific knowledge

On an individual level, many farmers described in detail their parcel-specific knowledge, and how it appeared not to be valued by regulators. Through years of working and often living on their land, they had gained detailed knowledge of seasonal patterns, responses to management, drainage and flooding patterns, and species presence. For example, one respondent [Interview 12] understood the goal of creating shade for the creek and had a targeted plan to do so via trees in key places that in conjunction with a hillside would maintain shade over the creek at all times. Much of that information is potentially relevant to ecological restoration and riparian buffer creation. For those who had developed this detailed knowledge, it was important that restoration work integrate this knowledge. One hobby farmer described this as follows:

> *These folks have studied this a lot, they have put a lot of years of study into this they know a lot but maybe because I live here I know more specific information. And I think the specific information is really important. It needs to be embraced a little bit stronger. [Interview 12]*

Even in cases where Conservation District staff members were willing and able to embrace the local knowledge of farmers and the conditions of specific parcels, the rules and regulations they needed to abide by restricted options. Some farmers felt that the program rules and regulations did not fit with the 'real world' or their lived experiences working their land. One hobby farmer diagnosed the problem as follows: *"One of the biggest problems I see in this industry is that we have plans on paper and then we have the world. And those don't really line up. Sometimes we can't move away from the paper"* [Interview 17]. In this case, the 'plans on paper' refers to the rules of CREP and the consequences for designing a riparian buffer on an individual parcel of land. 'The world' is the individual parcel of land and what it would mean to implement those rules on that land.

4.2.4 Knowledge base: Farming community's local and experiential knowledge rebuked by urbanites and regulators

On a community level, many farmers expressed frustration that regulators or urbanites did not understand the nature of farming or rural communities. Many respondents valued knowledge derived from direct experience and felt that government regulations and urbanites' perspectives snubbed such knowledge. They felt that these groups lacked the direct experience of working the land that would allow them to appreciate how farming worked and what it entailed; one part-time farmer said '*you gotta live it*' [Interview 03] and according to a hobby farmer: '*somebody needs to love that piece of land*' [Interview 12]. And yet regulators made decisions that impacted farmers, following their 'books' without looking around or, as one hobby farmer put it, referring to regulations designed to protect habitat for a different endangered species—spotted-owls:

> *[the federal government made] . . . a lot of one-size-fits-all type rules to try to solve the problem and ignored a lot of very local specific kinds of things that could have been done that maybe would have achieved the goals without inflicting so much economic pain on the communities [Interview 14]*

As well, some urban emigrants complained officially or unofficially about farm activities. One respondent put this frustration succinctly, speaking of these urban emigrants: *"They want to be able to see the cattle out in the field, but they don't want manure"* [Interview 03].

In some cases, respondents felt that the specific knowledge of the farming community about their land and the broader landscape, was negated by what they saw as the 'generalizable' knowledge of biologists and scientists. This applied primarily to those scientists seen as making rules for CREP or creating environmental regulations for agricultural land; many respondents had positive relationships with the Snohomish Conservation District staff they worked with. One farmer described this as such:

> *There were a bunch of people called fish biologists that . . . acquired the ability of being smarter than everybody else when the fish were listed. And what would happen is you know, we'd sit out there as farmers and say 'why do we need to do this?' And 'Because I said so, I'm a fish biologist.' You know it's like a little kid that's got a dad or a mom that doesn't teach them anything except 'I said so, so that's why you do it, and I'm bigger than you,' that kind of a deal. [Interview 08]*

The above farmer's frustration can be better understood in the context of the challenges and changes that rural communities are facing, in terms of increased regulatory burdens and changing social and cultural makeup of rural residents.

4.2.5 Agency: No-touch program rule restricts farmer agency over their land and landscapes

The idea of agency of the community over the landscape parallels the importance of active land management of the individual parcel of land. Agency pertains to the principle that having control over one's own being or the land's fate is crucial. The concept relates to regional conflicts focused on the relationship between farmers and urbanites or environmentalists where the latter groups are seen as exerting control over rural lands. Particularly those rural land managers actively engaged in farming often felt threatened by the encroachment of suburban recreational values at the expense of production values. This could take the form of non-farm neighbors complaining about regular farm activities, increasing regulatory pressure and restrictions as well as the loss of the farming community and resources associated with that (e.g., abattoirs, equipment rental). Even the idea of no-touch can, in this context, feel like an imposition of outsider ideas onto rural landscapes.

In the context of regional discussions around salmon conservation and the fears of many farmers of increasing regulations (including regarding riparian habitat) as well as increasing urban in-migration to rural areas in the Puget Sound, some farmers associate environmental regulation with the imposition of urban values. Environmental regulations restrict farmer agency, and regulations are seen as imposed from outside of rural areas; while most of the land area of Washington State is rural, the urban majority (84%) dominates state politics and economics (Jewell, 1998; Washington State Department of Health, 2017) . For example, one farmer questioned the motivations behind salmon conservation efforts, suggesting that perhaps urbanites wanted the landscape for recreational purposes: *"I don't think it has anything to do with the fish … I think … Seattle wants this to be their park"* [Interview 03]. A number of landowners distrusted government and worried that participating in a government program would open them up for what they saw as unfair regulation and potentially fines.

> *Nobody wants the county [government officials] on their land. Nobody does. Because if they come on the land and they see something they don't like, then suddenly, you've got a hundred-thousand-dollar fine, when you're trying to do something right and putting your land in conservation [Interview 6]*

The above farmer describes the fear that regulations might be unpredictably imposed based on what government officials did or did not like.

Finally, a few landowners were concerned about a number of specific and potentially unrelated restrictions in CREP, such as those restricting their options for selling the land during the tenure of the contract. While also an economic conflict, this concern had other value dimensions; respondents expressed concern that future landowners would be restricted in ways they might want to use their land and did not want to impose this upon them. One respondent described these restrictions as 'poison pills' deterring potential enrollees from what was otherwise a good program. Another ex-urbanite explained that his view of government regulations (in the voluntary CREP program specifically and regulations for agricultural land generally) had become more negative after just a few years as a rural landowner, via his own experiences and conversations with neighbors. This landowner as well as the above two hobby farmers all chose to implement a non-CREP riparian buffer. For them, the great cost and effort of that alternative was worth the additional flexibility.

5 Discussion

The challenge of increasing riparian buffer acreage on agricultural land has traditionally been conceptualized as a question of understanding farmers' intrinsic or instrumental values and developing attractive incentives. In this study, we have shown how a host of values play into farmer and rural land manager[1] decisions to enroll in riparian buffer programs. *Value alignment is key.* Prescribing a minimum buffer width for participation in CREP limits the options available to farmers and the Snohomish Conservation District staff to design riparian habitat that fits with the needs and values of farmers. The presence of this or other rules thus limits the perceived agency of farmers. Wider buffers also spark concerns about the broader impacts of farmland

[1] In the following we use the term farmer to refer to both agricultural producers and rural land managers more broadly (e.g., pastures for horses, nurseries, etc.). Further details on the sample composition under Methods.

loss. The values around tidy landscapes and active management of the land, that many farmers hold, directly conflict with the idea of 'no-touch.'

Many of these value conflicts can be better understood through the lens of relational values (Chan et al., 2016). In the following sections we discuss our analysis of relational values in the context of knowledge-cultures as elaborated by Tsouvallis and 'the good farmer' as discussed by Burton. Specifically, a relational values approach makes explicit the relationships that implicitly underpin these other theories. In our study, three relationships are of special importance here: one is between farmers and their land. As described below, this relationship can be seen as derivative of a farming identity, and from it follow values such as active land management and using an experiential knowledge base. The second relationship is between land managers and rural communities. As described below, the importance of this relationship (and perceived threats to it from conservation efforts) drives value conflicts around agency as well as tidy aesthetic preferences. The third relationship is that between rural farming communities and landscapes, where a legible landscape (Drenthen, 2009) reinforces community agency and rural farming values. Beyond value conflicts, many relational values can be seen in farmers' motivations for installing riparian buffers: to improve the land (e.g., via stream bed stabilization or improved drainage); a sense of stewardship or care for wildlife, land, and water; and technical, labor and financial assistance.

In section 5.1 we focus on the relationships of farmer—land and farmer—community and discuss the implications of using these relationships and relational values in conjunction with theories of knowledge-cultures and cultural capital. We show how Burton's idea of 'the good farmer' can be seen as based in the relationships of farmers to their land, their community and the landscape. In section 5.2 we focus our analysis on the farming community—landscape relationship; we discuss the larger implications of this relationship, which form the background for points of friction based on different knowledge-cultures.

5.1 On Being a Good Farmer: Relational values as derivative of identity

Farmers have identities as producers, stewards of the land or farmers. Based on their conception of what it means to be a good farmer, they might then have certain

relational values—notions of appropriate relationships between people and land. The participants in this study expressed a wide variety of relational values, including some compatible with riparian buffer projects and programs and others that highlighted value conflicts either with the project itself or certain rules of the program.

A useful way to understand how these value conflicts work together to facilitate or constrain farmer participation in conservation programs is via Burton's theory of role performance. Burton elaborated how the identity of a 'good farmer' is performed via activities that demonstrate the farmers' 'commitment to agriculture as a way of life, to the soil and to the crop,' (Burton, 2004, p. 209). The tidy agricultural landscape is thus an outward demonstration of the farmer's commitment and skill (Burton, 2012). This value—for neat and tidy landscapes—has been found among farmers throughout the world (Burton, 2004; Dessein & Nevens, 2007; Egoz, Bowring, & Perkins, 2001; Fish, Seymour, & Watkins, 2003; Morris, 2004; Nassauer, 1995; Schneider, Ledermann, Fry, & Rist, 2010; Schoon & Grotenhuis, 2000; Setten, 2004). Via active management informed by keen observation, the farmer can create a neat and tidy agricultural landscape.

From this perspective we might ask: what does a farmer need to do? Here we have identified two key tasks, which symbolize particular types of relationships between farmers and the land. First, farmers must observe and understand a particular piece of land, and its unique features (knowledge base); based on this, they need to actively manage the land (agency, active management). These both involve a particular type of relationship between the farmer and the land, a relationship that is valued for its own sake by many agrarians. This relationship is not necessarily with the land in general, but with a specific piece of land (Carlisle, 2013; Smith, 2003). This is in contrast to some strands of conservation such as ecosystem services or conservation planning, where models optimize production of a suite of ES or biodiversity objectives across a landscape (Chan, Shaw, Cameron, Underwood, & Daily, 2006).

The farmer's role is to utilize a patch of land using a management order designed for a specific purpose (food production), which generally associates with a tidy appearance. Many participants in our study discussed green grass and a lack of mud as key visual indicators of successful farm management. A tidy aesthetic demonstrates care and competence to others, including to potential customers, neighbors, and the farming

community. These require observations of water-runoff during the rainy season and planning to manage this water via work conducted in the summer months. This idea of active management can conflict with conservationist ideals around wild or natural landscapes (Cronon, 1996; Marris, 2011). This is a recurring theme relevant for agrarian/conservation value conflicts: that of differing ideas about the relationships between people and nature, with conservation actors often promoting a clear separation between 'natural' areas and human productive activities (Cronon, 1996).

Beyond its role as signifying farming care and competence, the tidy agricultural landscape is also important for the relationship between the farmer and the landscape and can be seen as creating what Drenthen calls a 'legible landscape' (Drenthen, 2009). The symbolic value of the tidy landscape can even be seen as derived from its 'legibility' in that it only demonstrates farming competence when other farmers can 'read' the landscape and see that the farm is thus well managed; for example, our respondents discussed well-cared for historic farm implements and color-coded gates on fences as demonstrations of competence and care. Similarly, Nassauer (1995) discusses 'landscape language' and the ways it can demonstrate 'cues of care,' i.e., a tidy landscape demonstrates that a human has cared for it via the work they have put into maintaining it. Unmanaged ecological function however may not be legible to many people.

We can see many of these ideas about what it means to be a good farmer by considering the history of American agrarianism, in the Jeffersonian ideal of the yeoman farmer as foundational to the moral fabric of the nation (Smith, 2003) or via the food sovereignty movement's rallying cry to keep 'our hands in the dirt' (Carlisle, 2013). The idea of 'no-touch' buffers seems to keep farmers' hands out of the dirt. The aesthetic qualities of a 'no-touch' buffer may also conflict with farmers' preferences. Leaving vegetation to grow of its own accord may result in messy and uneven buffers; beautiful to restoration ecologists, but potentially challenging to the tidy aesthetic preferred by many farmers.

To require a farmer to avoid particular kinds of management activities in a designated part of their land conflicts with the agency of the farmer to actively manage and care for their land. Yet, the actual restrictions imposed by the 'no-touch' rule may be less strict than many land-managers imagined (Breslow, 2001). Staff at the Snohomish

Conservation District explained that the rule is primarily aimed at keeping agricultural activities such as grazing out of the riparian zone. Respondents often questioned if they could engage in seemingly benign activities in the riparian buffer (mushroom picking, moving around a few rocks), indicating that even after discussing the program with Snohomish Conservation District staff, they still were concerned about such small infractions to the no-touch rule. One reason for this heightened concern may be that by signing up for a government program, farmers feel more exposed to potential regulatory action by environmental agencies. This may or may not be the case, but regardless, the perception could limit participation in the program. Recognizing that the language of 'no touch' had turned farmers away, the Washington CREP administration recently shifted their choice of language. Now staff are instructed to tell farmers that they are being paid to produce a different kind of crop, a 'buffer crop' in a sense. This change has another potential benefit—it encourages the active care of the riparian zone that is needed to maintain and support vegetation.

Ecological restoration can also be active management, observation and experimentation. For example, building fences and getting hands in the dirt via invasive species removal or new plantings also align with an agrarian conception of care for the land. Farmer's parcel specific knowledge could also be used to design restoration. For example, one respondent understood that a key goal of the buffer would be to create shade over the river. He could explain exactly where vegetation would be needed in order to shade the creek and where it could be left out because of the shade from a steep slope above the creek. Another option is Nassauer's (1995) suggestion that we create 'messy ecosystems' in 'orderly frames.' This idea was implemented by the respondent who 'evened out' the river via a variable width buffer; while the buffer itself was messy, the straight edge by the field demonstrated that it was intentional and part of the farmer's care of the land.

Some individuals are allowed to 'touch' and modify the buffer—individuals from agencies funding and implementing the projects. In this sense, these individuals are considered qualified to make decisions that are implemented on a farmers' land as a function of their presumed knowledge base. The farmer themselves, however, is excluded from making these choices when enrolled in CREP. Farmer's knowledge is often contextual, practice-based, and integrated with their identity, way of life and

community; this may appear at odds with seemingly inflexible prescriptions of experts (Cash, Adger, Berkes, & Garden, 2006; Harrison, Burgess, & Clark, 1998; Millar & Curtis, 1999; Schneider et al., 2010; Tsouvalis, Seymour, & Watkins, 2000). In a variety of conservation contexts, local peoples' knowledge may be overridden by that of outside 'experts' or politicized via externally imposed programs (Gareau, 2007; Pfeffer, Schelhas, & Day, 2001; Shepherd, 2010; West, 2006). Similarly, the way some farmers in this study discussed government regulations and 'fish biologists' parallels frustrations felt by other 'local communities' in opposition to conservation (Satterfield, 2007; Sayre, 2006; Walker & Fortmann, 2003; West, 2006). For example, one of the most important factors in predicting participation in a watershed PES was resentment towards New York City's conservation policy and control of land (Armstrong, Ling, Stedman, & Kleinman, 2011).

In this paper, we have shown how a relational values approach can contribute to existing work on knowledge-cultures (Morris, 2006; Tsouvalis et al., 2000). We identified two relationships from which value-conflicts based on different knowledge-cultures arise. These are farmer—land and community—landscape. In this, we show how different knowledge-cultures are not only different ways of thinking but actually function as threats or perceived threats to farmers' valued relationships at two scales. At the individual scales is the relationship of the individual farmer to the land; at the group scale is that of the farming community to the landscape. We have elaborated the former in the previous section and do so for the later in the following section.

5.2 Large scale transformations in rural landscapes set the stage for frustration with conservation initiatives

At one level, one could consider the current resentment over regulations governing riparian buffers to derive from the perception of many farmers that their very identity/way of life is at risk due to a constellation of pressures. Both amenity migration (wherein elites buy vacation properties in the countryside, often in the Global South) and suburbanization are changing the face of the countryside in places around the world from production-focused landscapes (e.g., agriculture, forestry) to consumption-oriented ones (e.g., for recreation, tourism, and vacation homes) (Donahue, 2003; McCarthy, 2007; Walker & Fortmann, 2003). For rural areas, there are often conflicts or at least different ideas of how the place and landscape should

look, function (and smell) between agricultural residents and recent suburban 'immigrants' (Donahue, 2003; McCarthy, 2007).

Within the Puget Sound region as well as many other agricultural areas near urban centers, pressure to sub-divide and develop agricultural lands is high. A suite of economic and social factors is pushing farmers out of business: market globalization and resultant decreases in farm economic viability, recruitment of new farmers, regulatory burdens, and the aforementioned development pressure from urbanization (Canty, Martinsons, & Kumar, 2012). In the context of these other pressures, efforts to push for greater conservation on agricultural lands can seem threatening, especially practices like riparian buffers that remove land from agricultural production for the purposes of conservation. For this reason, Breslow (2014) also found that farmers in neighboring Skagit County have argued against new environmental regulation on the basis of their cultural heritage, which farmers see as threatened. While some farms may be converted to more conservation-oriented purposes, others will be converted into subdivisions. Beyond the food security problem of paving over prime agricultural land, the opportunity to find synergies with food production and conservation is lost. More fundamentally, this demographic and landscape change threatens values that agrarians hold dear—(relational) values of connection that depend on vibrant agricultural communities and landscapes.

6 Conclusion

This paper found that specific rules and institutional structures of an agri-environment incentive program conflicted with agrarian values, apparently impeding farmer participation despite generous compensation. Understanding the source of this conflict—in terms of relational values derived from farmer identities, as discussed above—suggests several ways to mitigate such problems. Conservation programs need not conflict with agrarian values. Activities such as removing invasive species, building fences, stabilizing river banks, or installing compost management systems all have ecological as well as farm management benefits; all also mesh with agrarian preferences for actively managing tidy landscapes. Creative solutions can also include creating riparian buffers with varying widths such that field edges are square while rivers continue to meander. Such a design would help with large woody debris recruitment for salmon habitat by including wider stretches within the buffer but also

allow for farmers to create a neat and tidy field that allows for their ease of management. In other cases, riparian buffer design could incorporate farmers' parcel specific knowledge. Including this level of detailed observation from farmers into plans can help both to meet farmer and conservation objectives, but also validates the knowledge and skills of the farmer. Farmers are experts in knowing which actions will produce which results on their land. When programs ignore this expertise, farmers can feel slighted.

Thus, understanding the values held by potential participants in conservation programs of all sorts can help to better design such programs. This can serve two purposes. First, by developing programs that align with potential participants' values, participation can be increased and financial 'incentives' can enable projects for already motivated participants via cost-shares, without exceeding the full cost of such actions. Second, and perhaps more important, by reflecting values such as stewardship and care for the land, conservation programs could reinforce such values, therefore not only yielding improved habitat or ecosystem services, but also sustaining the values needed to maintain such programs in the first place.

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